

What is claimed is:

1. A fuel injection system for an internal combustion engine having an intake pipe equipped with a throttle valve, an upstream fuel injector provided upstream from said throttle valve and a downstream fuel injector provided downstream from said throttle valve, said fuel injection system comprising:

means for determining a total injection quantity of the upstream and the downstream fuel injectors;

means for determining a rate of fuel injection of each of the upstream and the downstream fuel injectors;

means for acquiring temperature information representing a temperature of the throttle valve; and

means for correcting said rate of fuel injection on the basis of said temperature information,

wherein said correction means decreases the injection rate of the upstream fuel injector when the temperature of the throttle valve is lower than a first predetermined temperature.

2. The fuel injection system for an internal combustion engine according to claim 1, wherein said correction means stops said upstream fuel injector when the temperature of said throttle valve is a second predetermined temperature lower than said first predetermined temperature.

3. The fuel injection system for an internal combustion engine according to claim 1, wherein said means for acquiring said temperature information detects at least one of atmospheric temperature and cooling water temperature of the engine.

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4. The fuel injection system for an internal combustion engine according to claim 2, wherein said means for acquiring said temperature information detects at least one of the atmospheric temperature and cooling water temperature of the engine.

5. The fuel injection system for an internal combustion engine according to claim 1, wherein the total injection quantity is determined on the basis of a speed of the engine, a throttle opening of the engine and an intake pressure of the engine.

6. The fuel injection system for an internal combustion engine according to claim 1, wherein the rate of fuel injection of each of the upstream and the downstream fuel injectors is determined from an injection rate table on the basis of a speed of the engine and a throttle opening of the engine.

7. The fuel injection system for an internal combustion engine according to claim 1, further comprising means for correcting an injection quantity of each of the upstream and the downstream fuel injectors,

wherein the injection quantity of the upstream fuel injector is determined on the basis of the total injection quantity and the injection rate of the upstream fuel injector, and the injection quantity of the downstream fuel injector is determined on the basis of the injection quantity of the upstream fuel injector and the total injection quantity.

8. A method for injecting fuel in an internal combustion engine having an intake pipe equipped with a throttle valve, an upstream fuel injector provided upstream from said throttle valve and a downstream fuel injector provided downstream from said throttle valve, said method comprising the steps of:

determining a total injection quantity of the upstream and the downstream fuel injectors;

determining a rate of fuel injection of each of the upstream and the downstream fuel injectors;

acquiring temperature information representing a temperature of the throttle valve; and  
correcting said rate of fuel injection quantities on the basis of said temperature information,

wherein said correction means decreases the injection rate of the upstream fuel injector when the temperature of the throttle valve is lower than a first predetermined temperature.

9. The method according to claim 8, wherein said correction means stops said upstream fuel injector when the temperature of said throttle valve is a second predetermined temperature lower than said first predetermined temperature.

10. The method according to claim 8, wherein said means for acquiring said temperature information detects at least one of atmospheric temperature and cooling water temperature of the engine.

11. The method according to claim 9, wherein said means for acquiring said temperature information detects at least one of the atmospheric temperature and cooling water temperature of the engine.

12. The method according to claim 8, wherein the total injection quantity is determined on the basis of a speed of the engine, a throttle opening of the engine and an intake pressure of the engine.

13. The method according to claim 8, wherein the rate of fuel injection of each of the upstream and the downstream fuel injectors is determined from an injection rate table on the basis of a speed of the engine and a throttle opening of the engine.

14. The method according to claim 8, further comprising the step of correcting an injection quantity of each of the upstream and the downstream fuel injectors,

wherein the injection quantity of the upstream fuel injector is determined on the basis of the total injection quantity and the injection rate of the upstream fuel injector, and the injection quantity of the downstream fuel injector is determined on the basis of the injection quantity of the upstream fuel injector and the total injection quantity.